In the United States Patent and Trademark Office

In re Application of: Alberto I. Roca	§	Group Art Unit: 1652
Serial No. 09/358,103	§	Examiner: R.A. Wax
Filed: 07/21/1999	§	
For: Mutants of MAW Motifs of RecA Protein Homologs, Methods of Making Them, and Their Uses	§	Atty. Docket: ROCA-01

Declaration of Alberto I. Roca

I declare that the information recorded in computer readable form submitted with this amendment is identical to the written sequence listing. This amended listing contains no new matter over the content of the original application specification.

I declare that all statements made herein o f my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

10/13/99
Date

Alberto I. Roca

SEQUENCE LISTING

<110> Roca, Alberto I

<120> Mutants of MAW Motifs of RecA Protein Homologs, Methods of Making Them, and Their Uses

<130> RecA Homolog Protein & Mutants

<140> 09/358,103
<141> 1999-07-21

<150> 60/094,071
<151> 1998-07-24

<160> 3

<170> PatentIn Ver. 2.0

<210> 1
<211> 26
<212> PRT
<213> Escherichia coli

<220>
<221> NON_TER
<222> (1)

<220>
<221> NON_TER
<222> (26)..)

<220>
<221> HELIX
<222> (6)..(12)
<223> Alpha-helix B

<220>
<221> STRAND
<222> (22)..(26)
<223> Beta-strand 1

<220>
<221> SIMILAR
<222> (1)..(26)
<223> This structure is highly conserved across bacterial RecA and homologous eukaryotic, archaeal, and viral proteins; sequence below is

from E. coli RecA positions 40-65

<400> 1
Ile Ser Thr Gly Ser Leu Ser Leu Asp Ile Ala Leu Gly Ala Gly Gly
1 5 10 15

Leu Pro Met Gly Arg Ile Val Glu Ile Tyr
20 25

<210> 2
<211> 26
<212> PRT
<213> Escherichia coli

<220>
<221> NON_TER
<222> (1)

<220>
<221> NON_TER
<222> (26)

<220>
<221> HELIX
<222> (6)..(12)
<223> Alpha-helix B

<220>
<221> STRAND
<222> (22)..(26)
<223> Beta-strand 1

<220>
<221> SIMILAR
<222> (1)..(26)
<223> Non 'Xaa' residues are the invariant MAW-motif
residues in RecA and its homologs

<220>
<221> SITE
<222> (1)
<223> This site is not invariant across RecA homologs
and has observed to contain Ile, Phe, Met, The,
Val, Tyr, or Leu

<220>
<221> SITE

<222> (2)
<223> This site is not invariant across RecA homologs
and has been observed to contain Ser, Gly, Lys,
Pro, The, or Arg

<220>
<221> SITE
<222> (3)
<223> This site is not invariant across RecA homologs
and has been observed to contain The, Ser, or Trp

<220>
<221> SITE
<222> (4)
<223> This site is not invariant across RecA homologs
and has been observed to contain Gly, Arg, Ala,
Lys, Asn, or Gln

<220>
<221> SITE
<222> (5)
<223> This site is not invariant across RecA homologs
and has been observed to contain Ser, Ala, Cys,
Ile, Asn, Asp, or Phe

<220>
<221> SITE
<222> (6)
<223> This site is not invariant across RecA homologs
and has been observed to contain Leu, Ile, The,
Val, Tyr, Lys, Gln, Asp, Pro, or Arg

a1

<220>
<221> SITE
<222> (7)
<223> This site is not invariant across RecA homologs
and has been observed to contain Ser, Ala, Asp,
Gly, Leu, Met, The, Val, Tyr, Glu, Asn, or Gln

<220>
<221> SITE
<222> (8)
<223> This site is not invariant across RecA homologs
and has been observed to contain Leu, Ile, Val,
Phe, or Met

<220>
<221> SITE

<222> (9)
<223> This site is not invariant across RecA homologs
and has been oberved to contain Asp or Asn

<220>
<221> SITE
<222> (10)
<223> This site is not invariant across RecA homologs
and has been observed to contain Ile, Ala, Glu,
Gly, Leu, Asn, Gln, Arg, Ser, The, Val, Lys, or
Asp

<220>
<221> SITE
<222> (11)
<223> This site is not invariant across RecA homologs
and has been observed to contain Ala, Ile, Leu, or
Val

<220>
<221> SITE
<222> (12)
<223> This site is not invariant across RecA homologs
and has been observed to contain Leu, Met, or The

<220>
<221> SITE
<222> (13)
<223> This site is not invariant across RecA homologs
and has been observed to contain Gly, Gln, Ala,
Asn, or Ser

a1

<220>
<221> SITE
<222> (14)
<223> This site is not invariant across RecA homologs
and has been observed to contain Ala, Ile, Ser,
The, Val, Gly, or Leu, and this site is not
present in some homologs

<220>
<221> SITE
<222> (17)
<223> This site is not invariant across RecA homologs
and has been observed to contain Leu, Phe, Ile,
Val, Tyr, or Met

<220>

<221> SITE
<222> (18)
<223> This site is not invariant across RecA homologs
and has been observed to contain Pro, Glu, Met,
Phe, Gln, Arg, or Val

<220>
<221> SITE
<222> (19)
<223> This site is not invariant across RecA homologs
and has been observed to contain Met, Gly, Lys,
Arg, The, Ala, Pro, or Ser

<220>
<221> SITE
<222> (20)
<223> This site is not invariant across RecA homologs
and has been observed to contain Gly, Leu, Met,
Ala, His, Gln, or Arg

<220>
<221> SITE
<222> (21)
<223> This site is not invariant across RecA homologs
and has been observed to contain Arg, Gln, Ser,
Gly, The, or Val

<220>
<221> SITE
<222> (22)
<223> This site is not invariant across RecA homologs
and has been observed to contain Ile, Val, Ala,
Leu, or Met

a'

<220>
<221> SITE
<222> (23)
<223> This site is not invariant across RecA homologs
and has been observed to contain Val, Ile, The, or
Tyr

<220>
<221> SITE
<222> (25)
<223> This site is not invariant across RecA homologs
and has been observed to contain Ile, Val, Ala,
Leu, Met, or Phe

<220>
<221> SITE
<222> (26)
<223> This site is not invariant across RecA homologs
and has been observed to contain Tyr, Phe, Ala,
Gly, or Val

<400> 2
Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Gly Gly
1 5 10 15

Xaa Xaa Xaa Xaa Xaa Xaa Xaa Glu Xaa Xaa
20 25

<210> 3
<211> 26
<212> PRT
<213> Escherichia coli

<220>
<221> NON_TER
<222> (1)

<220>
<221> NON_TER
<222> (26)

<220>
<221> HELIX
<222> (6)..(12)
<223> Alpha-helix B

A'

<220>
<221> STRAND
<222> (22)..(26)
<223> Beta-strand 1

<220>
<221> SIMILAR
<222> (1)..(26)
<223> Non "Xaa" residues are the invariant and
semiconservative elements of the MAW motif in RecA
and its homologs

<220>
<221> SITE
<222> (2)

<223> This site is neither invariant nor semiconservative across RecA homologs and has been observed to contain Ser, Gly, Lys, Pro, The, or Arg

<220>
<221> SITE
<222> (5)
<223> This site is neither invariant nor semiconservative across RecA homologs and has been observed to contain Ser, Ala, Cys, Ile, Asn, Asp, or Phe

<220>
<221> SITE
<222> (6)
<223> This site is neither invariant nor semiconservative across RecA homologs and has been observed to contain Leu, Ile, The, Val, Tyr, Lys, Gln, Asp, Pro, or Arg

<220>
<221> SITE
<222> (7)
<223> This site is neither invariant nor semiconservative across RecA homologs and has been observed to contain Ser, Ala, Asp, Gly, Leu, Met, The, Val, Tyr, Glu, Asn, or Gln

a'

<220>
<221> SITE
<222> (10)
<223> This site is neither invariant nor semiconservative across RecA homologs and has been observed to contain Ile, Ala, Glu, Gly, Leu, Asn, Gln, Arg, Ser, The, Val, Lys, or Asp

<220>
<221> SITE
<222> (13)
<223> This site is neither invariant nor semiconservative across RecA homologs and has been observed to contain Gly, Gln, Ala, Asn, or Ser

<220>
<221> SITE
<222> (14)
<223> This site is neither invariant nor

semiconservative across RecA homologs and has been observed to contain Ala, Ile, Ser, The, Val, Gly, or Leu, and this site is not present in some homologs

<220>
<221> SITE
<222> (18)
<223> This site is neither invariant nor semiconservative across RecA homologs and has been observed to contain Pro, Glu, Met, Phe, Gln, Arg, or Val

<220>
<221> SITE
<222> (19)
<223> This site is neither invariant nor semiconservative across RecA homologs and has been observed to contain Met, Gly, Lys, Arg, The, Ala, Pro, or Ser

<220>
<221> SITE
<222> (21)
<223> This site is neither invariant nor semiconservative across RecA homologs and has been observed to contain Arg, Gln, Ser, Gly, The, or Val

<400> 3
Ile Xaa Thr Gly Xaa Xaa Xaa Leu Asp Xaa Ala Leu Xaa Xaa Gly Gly
1 5 10 15

Leu Xaa Xaa Gly Xaa Ile Val Glu Ile Tyr
20 25